Defense Information Infrastructure
CSCI
Top Level Design

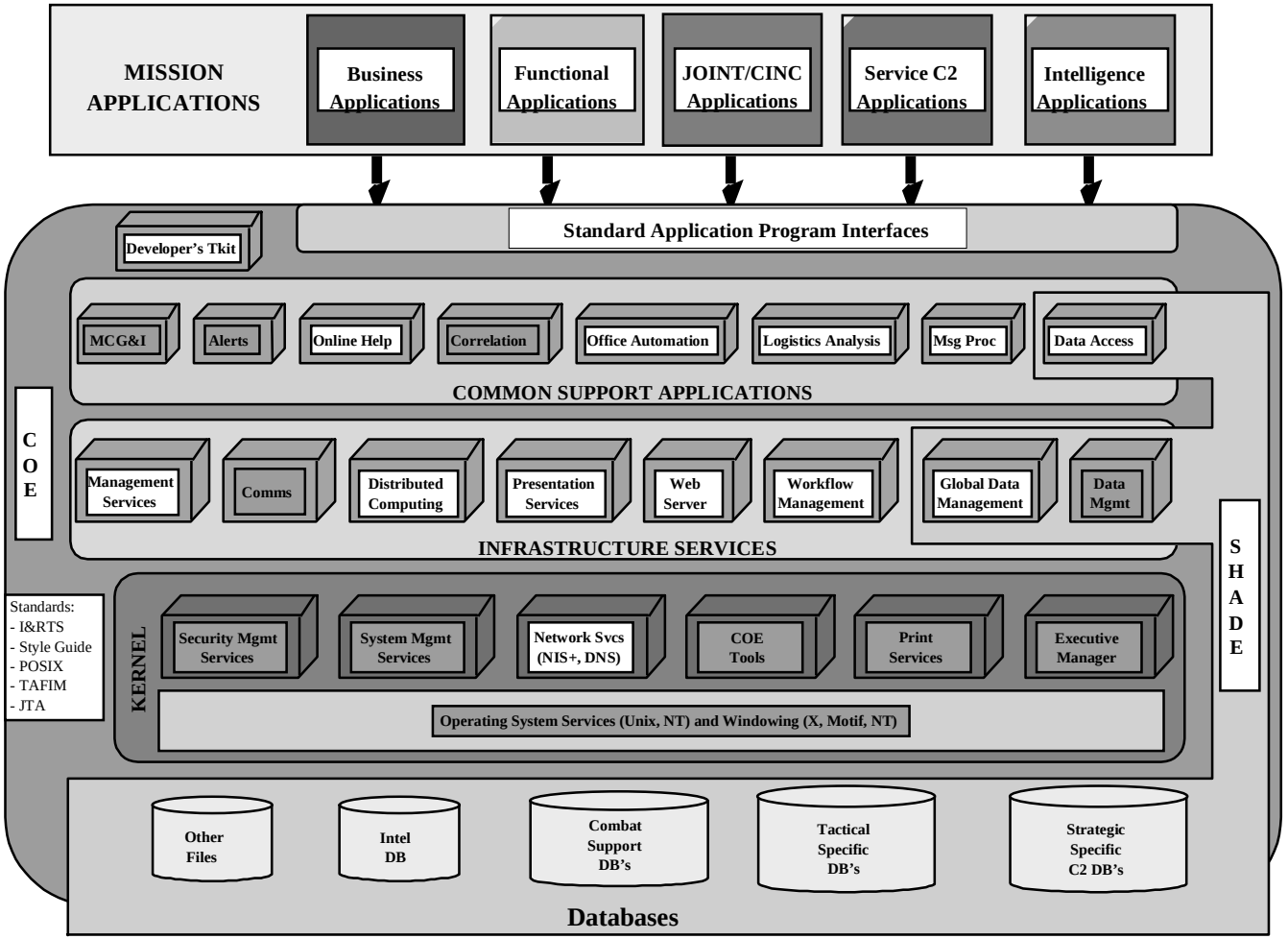
Section 5

NSWCDD

Agenda

- PDR Part I Review
- Software Operational Model
- Top Level Design
  - Section 1: CSCIs Overview
  - Section 2: DCM CSCIs
  - Section 3: RTP CSCI
  - Section 4: DataServer CSCI
  - Section 5: DII CSCI
  - Section 6: Route & Payload Planner CSCI
  - Section 7: Common AV & Payload CSCI

DII COE Architecture



Functional Applications/Segments

- A Segment is a collection of one or more DII CSCIs most conveniently managed as a unit.
- Segments are constructed to keep related CSCIs together so that functionality may be easily included or excluded.
- Segments are defined in terms of functions that are meaningful to operators, not in terms of internal software structure.
- Segments provide flexibility in configuring the system to meet specific mission needs, minimize hardware requirements for an operational site, and provides for easy field updates.

DII Segments

- COE Component Segments
  - Kernel, Developer's Toolkit
- Software Segments
  - JMTK - Cartographer/Chart
  - Track Database Manager (TDBM)
  - Universal Communications Processor (UCP)
    - Navy: Unified Build (UB)
    - Army: Common Message Processor (CMP)
  - Intel - NITF Services

COE Component Segments Overview

Kernel

- A basic System Administration function
- A basic Security Administration function
- An Executive Manage function (e.g., a desktop GUI or CDE)
- A template for creating privileged operator login accounts
- A template for creating non-privileged operator login accounts
- COE tools for segment installation

Developer Toolkit:

- Contains libraries of APIs and a collection of tools to assist in the segmentation process

Software Segment JMTK Overview

Cartographer

- Provides the basic mapping capabilities for the visualization subsystem of JMTK-V
- Application programs (clients) connect to Cartographer (server) and ask Cartographer to do various tasks

Chart

- Map manager program that runs under Cartographer
- Provides framework under which applications cooperate to create a composite display

TCS Interface to Chart

- TCS uses Chart API to draw TCS-UAV position
  - AV Icon
  - Annotation (eg. tail number)
  - Payload footprint
  - Trail of AV
- TCS draws Antenna Icons
  - Driven by ownship from TDBM
  - Can click to get Antenna status and command info
- TCS draws uploaded route plan from RPP (RPP also uses Chart API for Mission Planning)

Software Segment TDBM Overview

- TDBM provides multi-source correlation and database management of tactical track data.
- Tactical track data identifies attributes and position histories of reported ships, submarines, aircraft, land units, and other moving or fixed objects of interest in the world.
- Track data sources - Ships, Intel, OTCIXS, TADIXS.

TCS Interface to TDBM

- TCS uses TDBM's public APIs to input UAV unit track info into the track database.
- TCS Queries TDBM for owntrack position to use as Antenna and TCS position

Software Segment UCP Overview

Navy UB Comms

- Provides I/O services for DII COE-based systems.
- Takes coded input from various channels and decodes that input for use by TDBM.
- Input may be from: Link-11, OTCIXS, GPS interfaces, etc
- Inputs are received via: Various serial and parallel connections.

Army CMP

- A multifunctional automated message-processing system. Processes both inbound and outbound messages using a standard GUI.
- Messages conform to USMTF standards (MIL-STD-6040).

TCS Use of UCP

- Use CMP to generate track messages in the format required by the TCS user.
- Use AutoFill capability to assist in generating messages.
- Comms package will handle transmission and receipt of messages.

Intel: - NITF Services

- Currently using Image Composition Tool (ICT) and IES.
- Plan to develop an Imagery Processing and Data Extraction Tool (IPDET).
  - Step 1: Utilize existing ICT
  - Step 2: Modify IES - Add TDBM support. Enhanced tool would replace ICT and satisfy Image Annotation and Target Select modes for IDPET tool.
  - Step 3: Modify next generation Java Image and Video Exploitation (JIVE) tool to include TCS IPDET functionality. Provides IPDET functionality on NT machine and execute in a web-based environment.